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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,497	03/28/2002	Osamu Tajima	020181	2431
38834	7590	07/15/2005	EXAMINER	
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036			CREPEAU, JONATHAN	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 07/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,497

Applicant(s)

TAJIMA, OSAMU

Examiner

Jonathan S. Crepeau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 and 4 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 5-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-10. Claims 3 and 4 remain allowed. Claim 8 remains rejected under 35 USC 103 over Gyoten. Claims 1, 2 and 5 are newly rejected under 35 USC 102 and 103 as necessitated by amendment. However, a new ground of rejection has been applied to claims 6, 7, 9, and 10 which was not necessitated by amendment. As such, this action is non-final.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 6, 7, 9, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Cownden et al (U.S. Patent 6,316,134). The reference teaches a fuel cell system comprising a fuel cell (200) and a water tank (236) (see Figure 2). The water tank supplies water to a further tank (252) disposed in the air supply stream to the fuel cell. The tank contains liquid water (see col. 18, line 47) and functions to wash and humidify the process air stream. The tank (252) can be drained through the bottom portion thereof (see Fig. 2). The use of the drain in combination

with the water supply from tank 236 corresponds to the “means for periodically replacing the washing liquid” recited in claim 1 and the “means for replacing” recited in claim 6. Although the water tank (236) does not contain “cooling water” for the fuel cell, this limitation is recited functionally in claim 6 and is given little patentable weight. Further, the recitation in claim 7 that the means is operated “every fixed time” is also given little patentable weight because it does not limit the structure of the apparatus.

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

4. Claims 1, 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (U.S. Patent 5,985,474) in view of Folsom et al (U.S. Patent 5,443,041).

Chen et al. teach a fuel cell apparatus comprising a hot water tank (300) disposed in the air supply path to the fuel cell (see Fig. 7). The water in the tank is capable of humidifying and washing the incoming air.

Chen does not expressly teach a means for periodically replacing the water in the tank, the means including a means for discharging liquid through a lower part of the washing liquid tank, as recited in claim 1.

Folsom et al is directed to a hot water tank assembly. The assembly comprises a drain valve (14) at the lower portion of the hot water tank.

Based on the disclosure of Folsom et al., the artisan would be motivated to use the drain valve of Folsom et al. in the tank of Chen et al. In column 4, line 51, Folsom teaches that “the sediment and debris accumulated within can then be removed from the interior of the hot water tank. This prolongs the life span of the heating element as well as the hot water tank assembly.” Therefore, the artisan would be motivated to use the drain valve of Folsom et al. in the tank of Chen et al, and to periodically manually drain the tank to remove sediment. The periodic manual tank draining corresponds to the “means for periodically replacing the washing liquid reserved in said washing liquid tank” recited in claim 1 because the instant specification specifically identifies manual operation as corresponding to the means-plus-function limitation.

Chen does not expressly teach that the water supplied to the hot water tank is “treated” as recited in claim 5.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because using a “treated” water in the hot water tank would provide high purity water for use in the building and for humidifying the fuel cell air. The mere purity of a product, by itself, is generally not sufficient to render the product unobvious. *Ex parte Gray*, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989).

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gyoten et al (U.S. Patent 6,638,655) in view of JP 6-296817.

In column 8, line 11, Gyoten teaches a fuel cell apparatus comprising a fuel cell stack, a bubbler tank (i.e., washing liquid tank) containing distilled water that purifies and humidifies an air supply, and a condenser. As disclosed in column 8, line 22, the condensed water is supplied to the bubbler tank in order to prevent the tank from running out of water. This is considered to be anticipatory of the “means for replacing the washing liquid reserved in said washing liquid tank” recited in claim 6.

However, the reference does not expressly teach that the condenser comprises or is associated with a “tank” as recited in claim 6, or that the water is replaced according to the dirtiness of the washing liquid (claim 8).

However, the recitation of a “water tank” would be rendered obvious by the disclosure of Gyoten. Steam condensers are often associated with downstream tanks or reservoirs for catching and storing the condensed water. As such, this recitation in claim 6 would be rendered obvious.

JP ‘817 is directed to an air purification apparatus (see abstract). A water contamination detection sensor measures the contamination of the water in a tank and orders the water discharged and new water introduced when the contamination reaches a predetermined level.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the contamination sensor of JP ‘817 in the system of Gyoten et al. In the abstract, JP ‘817 teaches that the control of the water replacing period is “properly” performed by this apparatus. As such, the artisan would be motivated to use the contamination sensor of JP ‘817 in the system of Gyoten et al.

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6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cownden et al. in view of JP 6-296817.

Cownden et al. is applied to claims 1, 2, 6, 7, 9, and 10 for the reasons stated above.

However, Cownden does not expressly teach that the water is replaced according to the dirtiness of the washing liquid as recited in claim 8.

JP '817 is directed to an air purification apparatus (see abstract). A water contamination detection sensor measures the contamination of the water in a tank and orders the water discharged and new water introduced when the contamination reaches a predetermined level.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the contamination sensor of JP '817 in the system of Cownden et al. In the abstract, JP '817 teaches that the control of the water replacing period is "properly" performed by this apparatus. As such, the artisan would be motivated to use the contamination sensor of JP '817 in the system of Cownden et al.

Response to Arguments

7. Applicant's arguments filed May 10, 2005 have been fully considered but they are not persuasive insofar as they apply to the present rejections. Regarding the rejection of claim 8, Applicant requests documentary evidence that "condensers are often associated with downstream tanks or reservoirs for storing the condensed water," as asserted by the Examiner. In response, the Cownden et al. patent, applied above, is cited. In Figure 2, this reference shows a condenser

(254) in a cathode exhaust line, a water separator (256), and a tank (236) for storing condensed water. The condensed water is eventually supplied for use in a cathode inlet humidifier (252), among other uses. As such, the disclosure of the tank (236) can be regarded as evidence of the obviousness of the downstream tanks for collecting condensed water.

Regarding the Gyoten reference, Applicant states that the reference “contains no suggestion or motivation with regard to replacing the washing liquid according to its dirtiness.” First, it is noted that Gyoten is not required to contain such a suggestion, as the suggestion is supplied by JP ‘817. However, Gyoten does discuss the cleanliness of the bubbler in Example 3. In particular, at column 8, line 41, Gyoten discloses that “on the other hand, in the cell system of this example, the metal ions were removed in the bubbler tank, so that the contamination of the electrolyte membrane was suppressed.” As such, it is submitted that the combination of Gyoten and JP ‘817 is reasonable and is not merely based on hindsight.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the

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organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau
Primary Examiner
Art Unit 1746
July 13, 2005